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Research paper

A Comparative Study of BSE 100 ESG index and BSE 100 index

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Abstract

To protect the well-being of people, sustainability in businesses is essential. Any step taken should protect the interests in all three spheres economic, social and ecological. Such a step is required today as there is a need to protect our resources for our future generations. The United Nations has taken several constructive steps towards sustainability. Now, these are being reflected in the businesses as well. As a result, several stock market indices have come into existence to meet these objectives. This paper studies the BSE 100 and BSE 100 ESG indices and provides results.

Keywords: *BSE, Business, Sustainability, Stock indices.*

1. Introduction

The world has today witnessed the growth of businesses like never-before. There is huge competition among businesses. This competition has led to the shift of focus towards ethical issues on the back-stage. Thus efforts are required to promote sustainable development as a goal and raise its awareness to as great an extent as possible.

The concerns about the environmental damage caused by industrial activity of mankind first found its expression in the book written by Rachel Carson, "Silent Spring" in 1962. A significant step was taken to put forward what is now commonly known as "Sustainable Development" to everybody by the Brundtland Commission in 1987 through "Our Common Future". The UN bodies United Nations Conference on Environment and Development (UNCED) together with United Nations Environment Programme (UNEP) have been working for the cause of "Sustainable Development" and overall welfare of human beings, animals, plants and the environment.

The above goals require steps not only in the gross areas mentioned above. They are reflected in the fair conduct of businesses and conduct of the right types of businesses as well. The goals of sustainable development themselves require growth which addresses the needs of all three spheres namely economy, society and ecology. Considering the mentioned requirements, many stock markets have developed indices which reflect the sustainability of the businesses conducted by the organizations listed in the indices.

The BSE 100 ESG is one such index introduced in the Indian stock exchange BSE. "ESG" in the name stands for Environment, Society and Governance. This index excludes all those companies which do not meet certain sustainability criteria. But it maintains a risk and performance profile similar to BSE 100 index.

This paper studies the relationship between BSE 100 ESG and BSE 100 over a period of time of one year.

2. Literature Review

Elkington (1998) in his book explains how highly competitive business organizations which were originally competing against each other could actually form partnerships resulting in new kinds of symbiosis and elegant triple bottom-line solutions. Tischler (1999) makes use of the Maslow's theory of needs concept used for an individual view to study people working in organizations of countries. After being satisfied with the basic needs, they start seeking higher order needs like happiness and satisfaction from their work, which prompts organizations to have "spirituality" in their businesses. Marsden (2000) discusses how industry could play a hand to become an important participant in sustainable development through its corporate citizenship activities.

Bebbington and Gray (2001) in their paper talk about sustainability accounting and the early problems witnessed with a case study in New Zealand. This case was witnessed at a time when the awareness about sustainability was just beginning to spread. Dyllick and Hockerts (2002) about the responsibility of business organizations in putting forth not just economic capital, but also social and ecological capital in order to attain "true" sustainability. Holland (2003) talks about the usefulness of the concept of "ecological footprint" to the case of business organizations. This is a concept which is generally used for only larger entities such as cities and countries. But here, the author tests the concept for business organizations and how this can be useful in developing environmental management systems and other tools for sustainability.

Zhao (2004) in his paper discusses the case of how Siemens has addressed the problems of sustainable development through its efforts, even though some more efforts were needed to be taken in the direction. The paper was useful for practicing managers with sustainable development as goal. Labuschagne et al (2005) discuss the importance of all the facets of sustainability for inclusion in the operations of an organization. This study also proposes a new framework for sustainability in the manufacturing sector. Beheiry et al (2006) in their paper study the result of commitment to sus-

tainability on the outputs of the companies' projects. For these, they use a few indices which indicate the performance of the companies.
The paper by Scherrer et al (2007) talks about integrating sustainability into business strategy. It also talks about integrating sustainability into actual day-to-day business activities. Stubbs and Cocklin (2008) in their paper argue that for sustainability in business, the concepts of sustainability should be the driving forces, rather than supplements for business policies. Accordingly, they propose a new model for sustainable development. Petrini and Pozzebon (2009) talk about using Business Intelligence for including social and environmental sustainability factors into the business policy making. Houy et al (2010) in their paper explain that Information Technology (IT) has led to some global warming due to consumption of energy. But they also explain that IT can be a part of the solution to the problem by using BPM (Business Process Management) approaches.
Arevalo et al (2011) in their paper discuss how organizations learn to include sustainability in their business models, strategies, cultures, processes, etc. Porter and Derry (2012) put forward the theory that organizations have become increasingly complex today and they suggest a few ways to integrate sustainability into these complex systems. Kiron et al (2013) talk about how organizations can be successful with sustainability-driven innovation, in their paper. For this, they use the case of a packaging industry organization and illustrate their operations and activities. The paper by Beckmann et al (2014) discusses about using sustainability criteria for organizations to convert trade-offs into win-win situations. It also discusses how sustainable development concepts have developed from their initial stages to the present stage.
Gomes et al (2015) in their paper talk about the effectiveness of sustainability policies at the management level being according to the size of the organization. Schaltegger et al (2016) discuss in their paper that while the concept of sustainability found its expression in activities like corporate social responsibility and even operations in the past, the concept of integrating sustainability into the business models appeared only in the recent past. Silvius and Ripper (2017) in their paper talk about the use of sustainability indicators for businesses and not just return on investment. They also go on to say that businesses should be analyzed in terms of business cases or projects as changes are associated with each project. Breuer et al (2018) present a theoretical model for creation of sustainable value through products. This model is then used in the comparative analysis of six tools used in finding and building of business models with sustainability goals.

While all these works favour inclusion of sustainability in the businesses, this paper is a study of a stock market index introduced to track sustainability in businesses in India and comparison of its performance relative to another index which was used as a benchmark for the risk and performance profile for the new index when created.

3. Research Methodology

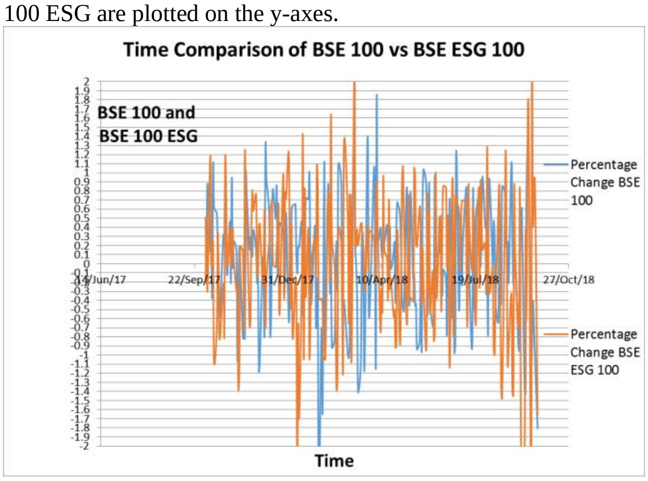
Secondary data from the BSE website were used for the study. Secondary data are data which are not collected by the researcher for the first time, rather these are data collected from other researches already performed.
Secondary data for almost 1 year were collected for the stock market indices mentioned. The association between the data for the two indices was studied using correlation. If correlation is +1, it shows a perfect positive correlation, i.e. it indicates that both indices are in perfect unison. A zero correlation indicates that both indices are not at all related. If correlation is -1, it shows a perfect negative correlation, i.e. both indicators vary in exactly opposite ways.
The data for the two indices were also plotted using a scatter-plot with time as x-axis and the data for the two indices on the y-axes. Their variations during the period were studied. The characteristics of these variations during a particular period can be attributed to some business developments, political developments, social developments, etc.

4. Analysis and Discussion

Analysis of the data revealed the following. The output is shown below.

	BSE 100	*BSE 100 ESG*
BSE 100	1	
BSE 100 ESG	0.570865	1

In this correlation matrix, the value 0.570865 indicates a moderate positive correlation between the indices BSE 100 and BSE 100 ESG. This indicates that organizations are reasonably good on sustainability performance, even though there is still scope for improvement. This BSE 100 ESG index can also guide organizations to consider more orientation towards sustainability in their businesses in the future.
The BSE 100 ESG index excludes from its composition such organizations which produce goods which are detrimental to economic, social and ecological welfare. Thus this promotes the welfare in all three spheres of economy, society and ecology.
Following output is a scatter-plot of the indices against time. The time is plotted on the x-axis and the two indices BSE 100 and BSE 100 ESG are plotted on the y-axes.



From the scatter plot, it is clear that the period between April 2018 and August 2018 had lesser variations in the positive and negative peaks. This can be attributed to various reasons. The Indian stock market had a steady growth in its indices in spite of the fear of trade wars in the global markets. The predictions of the World Bank with bullish forecasts for the Indian markets provided thrust to the growth. The IT sector had also performed well in the year. The performance of low volatility indices was also good which indicates steady performance of indices and not huge variations in the movement of indices.
During August 2018, the expectation of a National Health Protection Mission led to a big jump in the growth of Healthcare sector. Performances of the Healthcare sector and the Utilities sector were the main reason for the big jump in the performance of the indices in August. After August, the variations in the movement of the indices have been slightly more due to expectations of unfriendly environments for exports and various global developments.

5. Conclusion

The Indian organizations are reasonably good on sustainability criteria, even though there is scope for improvement in the future. Indian organizations generally consume lesser amounts of resources for producing their products. This has resulted in a reasonably good performance on the sustainability criteria, even though there is scope for improvement as mentioned. Some organizations doing businesses like mining find it tough to ensure sustainability, as the nature of the activity is like that and involves work in rural areas. So, efforts should be taken to improve lives of workers and other issues to ensure sustainability.

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